

Abstract

A method of plasma etching, in particular of anisotropic plasma etching, of laterally defined structures in a silicon substrate, using a process gas, is described. At least one passivating material is precipitated on the side walls of the laterally defined structures at least from time to time prior to and/or during etching. In a first method, the addition of at least one of the compounds selected from the group ClF_3 , BrF_3 , or IF_5 to the process gas as a fluorine-delivering etching gas is proposed. In a second method, NF_3 is added to the process gas, at least from time to time, as an additive consuming the passivating material. Finally, in a third method, a light and easily ionizable gas, in particular H_2 , He , or Ne , is added, at least from time to time, to the process gas. The three methods can also be combined.

330199